Amendment to the Specification

Please amend paragraph [0040] as follows.

[0040] Additional embodiments of the rotating-to-oscillating motion transmission are illustrated in FIGS. 4-9d which may be preferred over that described above. While many embodiments other than those described below are possible and while an oscillating motor is most preferred, it may not be practical to provide a directly oscillating drive which can effectively be oscillated over the desired angular segment at 5000 to 8000 Hz. Most oscillating drives currently commercially available are limited to oscillation rates of 3000 Hz or less. Therefore, what is disclosed are three embodiments, an oscillating belt drive, an oscillating four cycle cam drive, and an oscillating geared drive. FIG. 4 is a simplified perspective view of transmission 50, which is comprised of a rotating drive shaft 52 fixed to segmental belt pulley 54 and segmental drive gear 60. Segmental belt pulley 54 is engaged with an endless belt 58 which in turn is engaged with positive driven pulley 56. In the illustration, pulleys 54 and 56 as well as belt 54 are shown as smooth, but it is contemplated that toothed pulleys and belts may be employed. Similarly, in the illustration of FIG. 4 segmental drive gear 60 and negative driven gear 62 are shown as smooth and frictionally engaged, but it is contemplated that gears 60 and 62 may be toothed.

Please amend paragraphs [0045] - [0047] as follows.

[0045] Another embodiment is shown in FIGS. 6a-6d which is a classical eccentric pin and wheel combination. A drive wheel 54b rotating about a center or shaft 52a carries a radially disposed eccentric pin 66. Pin 66 is slidingly disposed in slot 70 of a crank~~68~~ 69. As wheel 54b rotates, pin 66 oscillates in slot 70 as shown in the sequence of end views of FIGS. 6a-6d thereby oscillating crank 69 and its connected shaft 64. The angular degree of oscillation is chosen according to the size of wheel 54b and the position of slot 70 relative to shaft 64.

[0046] FIG. 7 is a diagrammatic top view of transmission 50 using the eccentric-crank combination of FIGS. 6a-6d. The axis of rotation 52a of wheel 54b is offset from the axis of oscillation 64 of crank ~~68~~ 69. The axis of rotation and oscillation can be made coaxial by adding a drive gear 54a on drive shaft 52, which drive gear 54a engages gear 54b. The arc or angular magnitude of oscillation can easily be manipulated with such a set of gears 54a and 54b. Gears 54a and 54b are used to correct the offset between the axes of rotational drive and the oscillation output, and allows an easy means to choose the angular magnitude of rotation provided by choosing the gearing ratio between gears 54a and 54b.

[0047] A third embodiment for transmission 50 is diagrammatically illustrated in FIGS. 8a-8c. Rotational drive shaft 52 drives a forward gear 72, which is engaged with a reverse gear 74 so that gears 72 and 74 are counter-rotating as shown in end view in FIG. 8b. Forward gear 72 ~~76~~ is connected to a first drive shaft 76 and reverse gear 74 is connected to a second drive shaft 78. Drive shaft 76 in turn is connected to a bibbed segmental gear 80, while drive shaft 78 is connected to a bibbed segmental gear 82 as depicted in end view in FIG. 8c. Each of the bibbed segmental gears 80 and 82 have diametrically opposing engagement or toothed portions 86 which intermittently engage output gear 84 connected to oscillating shaft 64. Segmental gears 80 and 82 are rotated 90 degrees with respect to each other so that they are one-quarter turn out of phase with each other. In FIG. 8c shaft 52 is rotating clockwise which rotates shaft 78 counterclockwise and shaft 76 clockwise. Hence, when gear 80 engages output gear 84, shaft 64 is rotated counterclockwise and when gear 82 engages output gear 84, shaft 64 is rotated clockwise in alternating fashion. The angular magnitude of the oscillation of shaft 64 can be varied according to the angular size of portions 86 on gears 80 and 82. Instead of being bilobed, gears 80 and 82 may be multiply lobed as well.